data are recorded in Table V. Further description of the contents of Tables IV–V requires much more space and so is omitted here. Suffice it to say that with the aid of these tables, the entries in Tables I–III can with a few exceptions be evaluated to at least eight significant figures for $20 \leqq n < \infty$, $1 \leqq s < \infty$.

There is a good set of references. The printing and typography are excellent, and the present volume upholds the eminent tradition of British table-makers.

Y. L. L.

51[L, V].—J. W. Miles, "The hydrodynamic stability of a thin film of liquid in uniform shearing motion," *J. Fluid Mech.* 8, Pt. 4, 1960, p. 593–610. (Tables were computed by David Giedt.)

Let

$$\mathfrak{F}(z) = [1 - F(z)]^{-1} = w\,[A_i'(-w)]^{-1}\left[\frac{1}{3} + \int_0^w A_i(-t)\,dt\right], \qquad w = ze^{i\pi/6}.$$

$$\mathfrak{F}'(z) = z^{-1}\mathfrak{F}(z) + we^{i\pi/6}[A_i'(-w)]^{-1}A_i(-w)[1 - \mathfrak{F}(z)].$$

$$\mathfrak{F}^{(k)}(z) = \mathfrak{F}_r^{(k)}(z) + i\mathfrak{F}_i^{(k)}(z), \qquad k = 0, 1; \qquad F(z) = Fr(z) + iF_i(z).$$

The paper contains tables of $\mathfrak{F}(z)$, $\mathfrak{F}'(z)$, $F(z)$ and $z^3F_i(z)$ for $z = -6(.1)10$, 4S. The tables were obtained on an automatic computer by numerical integration of an appropriate differential equation. It can be seen from the above that the tables depend on values of the Airy integral $A_i(z)$, its derivative and integral along the rays $\pi/6$ and $-5\pi/6$ in the complex plane. Tables of $A_i(z)$ and its derivative are now available for complex z in rectangular form, but not in polar form. Also, tables of $\int_0^z A_i(\pm t)\,dt$ are available for z real. Thus, the given tables depend on values of some basic functions which, if available, would cut new ground. Unfortunately, the basic items were swallowed up in the automatic computation of $F(z)$. We have here a poor example of table making,—a practice which should not be emulated.

Y. L. L.

52[P].—Helmut Hotes (Compiler), *Wasserdampftafel der Allgemeinen Elektricitäts-Gesellschaft*, R. Oldenbourg, Munich, 1960, 48 p., 30 cm. DM 16 (Paperback).

There are two tables in this collection. Table I is a four-place table giving the temperature, the specific volume, the specific enthalpy, and the specific entropy as functions of the absolute pressure p. The last three dependent variables are given both for the fluid state and the gaseous state. The variable p ranges from 0.010 to 225,650 atmospheres, and the interval varies from 0.001 to 2000. Table II gives the specific volume, specific enthalpy and specific entropy as functions of temperature for constant pressure. Here p has the values 1, 5, 10 (10) to 400 atmospheres, and t varies from 0 (10) to 330 degrees centigrade.

The tables were calculated by expressing each of the dependent variables as polynomials in the pressure with coefficients as functions of the temperature or in some cases functions of the temperature and pressure. The error bounds given by such approximations to the specific volume and specific enthalpy as functions of pressure and temperature are included in the collection.

A. H. T.

53[P, X, Z].—WARD C. SANGREN, *Digital Computers and Nuclear Reactor Calculations*, John Wiley & Sons, New York, 1960, xi + 208 p., 24 cm. Price $8.50.

As the author states in his preface, the primary objective of this book is to present to nuclear engineers and scientists an introduction to high speed reactor calculations. Since the appearance of the basic reference, *The Elements of Nuclear Reactor Theory* by Glasstone and Edlund, Van Nostrand, 1952, the entire complexion of actual reactor design calculations has changed as a result of the growth in speed and size of computing machines, and reactor design calculations represent today a significant part of scientific computing time on modern computers.

The outline of the book by chapters is

Chapter 1. Introduction
Chapter 2. Digital Computers
Chapter 3. Programming
Chapter 4. Numerical Analysis
Chapter 5. A Code for Fission-Product Poisoning
Chapter 6. Diffusion and Age-Diffusion Calculations
Chapter 7. Transport Equation—Monte Carlo
Chapter 8. Additional Reactor Calculations

In Chapter 1, the author reviews the tremendous parallel growth of high speed computing machines and nuclear reactors, and their present interplay. In Chapter 2, an introduction and description of present day computers is given. In Chapter 3, programming for computers is introduced. After some preliminary remarks (no proofs) about interpolation, numerical integration, matrices, etc., items which can be found in many well-known texts on elementary numerical analysis, the author treats in Chapter 4 the more relevant problem of the numerical approximation of partial differential equations by difference equations, and their solution by means of iterative methods. Also, the treatment of interface conditions, which arise naturally in heterogeneous reactors, is given.

In Chapter 5, a simple code for fission-product poisoning is followed from the physical and mathematical definitions through to the construction of a program in the Bell (Wolontis) system.

In Chapter 6, the longest chapter, the author describes diffusion calculations, extending from steady-state criticality problems for reactors to the solution of two- and three-dimensional multigroup diffusion equations. In Chapter 7, the S_n method of Carlson is described, along with the use of Monte Carlo methods for solving problems such as those encountered in shielding calculations.

In his primary aim, the author does succeed. Nevertheless, the reviewer, being quite familiar with this area, was most critical with respect to the age of the references, as most of the technical papers referred to had appeared prior to 1957. As no serious attempt was made to fill the gap between these earlier developments and the developments which have taken place in the reactor field in the last few years, many statements in the book are either somewhat obsolete or misleading. For example, the numerical inversion of tridiagonal matrix equations on page 74 by an